

REMARKS

Claims 1 - 22 and 41 - 58 have been canceled by a prior amendment without prejudice or disclaimer of the subject matter thereof.

Claims 23 - 26, 29, 36 and 59 - 64 have been canceled by the subject amendment without prejudice or disclaimer of the subject matter thereof. Applicants reserve the right to pursue the subject matter of any of the canceled claims in subsequently filed continuing applications.

Claims 65 - 76 have been added.

Claims 27 - 28, 30 - 35, 37 - 40 and 65 - 76 are present and pending in the subject application.

In the Office Action of August 10, 2007, the Examiner has indicated that claims 27 - 28, 30 - 33 and 39 - 40 contain patentable subject matter, has rejected claims 23 - 26, 29 and 60 under 35 U.S.C. §102(b), and has rejected claims 23, 25 - 26, 29, 34 - 38, and 59 - 64 under 35 U.S.C. §103(a). Favorable reconsideration of the subject application and allowance of all of the pending claims are respectfully requested in view of the following remarks.

The Examiner indicates that claims 27 - 28, 30 - 33 and 39 - 40 would be allowable if rewritten in independent form to include all of the limitations of their parent claims and any intervening claims. Accordingly, claims 27, 30, 33, 39 and 40 have been re-written in independent form with slight modifications for further clarification and are considered to be in condition for allowance. Claims 28, 31 - 32 and new claims 65 - 73 depend from independent claims 27, 30 or 33, where claim 31 has been amended for consistency with its amended parent

claim and/or for further clarification. These dependent claims are similarly considered to be in condition for allowance.

The Examiner has rejected claims 34, 36 - 38 and 62 - 64 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,476,877 (Barker), or alternatively, U.S. Patent No 6,248,077 (Elson et al.), in view of U.S. Patent No. 5,590,648 (Mitchell et al.). This rejection is considered moot with respect to canceled claims 36 and 62 - 64. Briefly, the present invention is directed toward measuring the temperature of a fluid at selected locations along an IV fluid line. A temperature sensing device is secured to a selected portion of the IV line and includes a temperature sensor for measuring fluid flowing within that line. The device may be coupled to a temperature display device to display the measured temperature. The temperature sensing device may be in the form of a fitting including a temperature sensor.

The Examiner takes the position that the Barker and Elson et al. patents each disclose the claimed features, except for electronically displaying, recording or printing the measured temperatures. The Examiner further alleges that the Mitchell et al. patent teaches these features, and that it would have been obvious to combine the Mitchell et al. patent with either the Barker or Elson et al. patents to attain the claimed invention.

This rejection is respectfully traversed. However, in order to expedite prosecution of the subject application, independent claim 34 has been amended and recites the features of: a metallic receptacle receiving a temperature sensor, wherein a substantial majority of the receptacle is fixedly disposed in the connection port and external of the passage and the closed distal end of the receptacle extends slightly beyond the distal end of the connection port and

contacts fluid flowing within the passage; generating an electrical temperature signal indicating measured solution temperature to facilitate maintenance of a desired temperature for the medical solution; and at least one portion of the passage located proximally of the receptacle including the same transverse cross-sectional dimensions as at least one other passage portion located distally of the receptacle.

The Barker patent does not disclose, teach or suggest the above-discussed features recited in the independent claim. Rather, the Barker patent discloses a temperature sensing device for use in a fluid flow system. The device includes a housing with a tapered lumen extending through the housing, an opening extending through the housing and a thermally conductive enclosure inserted within the opening. The thermally conductive enclosure extends substantially fully across the lumen (e.g., See Fig. 2 and Column 3, lines 37 - 47). A thermistor temperature sensor is potted in a carrier to be received within the enclosure in order to determine the temperature of injectate flowing from a syringe through the lumen. The measured temperature is utilized to determine desired blood flow rate information (e.g., See Column 3, lines 59 - 65 and Column 4, lines 45 - 55).

Thus, the Barker patent discloses an enclosure extending substantially fully across the lumen, as opposed to a substantial majority of the receptacle being fixedly disposed in a connection port external of the passage with the distal end of the receptacle extending slightly beyond the connection port distal end as recited in the independent claim. Further, the Barker patent discloses a tapered lumen with constant narrowing (i.e., varying transverse cross-sectional dimensions along the length) from one end toward the other (e.g., See Fig. 2). Accordingly, the

Barker patent does not disclose, teach or suggest at least one lumen portion on each side of the enclosure having the same cross-sectional dimensions as recited in the independent claim. In addition, the measured temperature is utilized to determine desired blood flow rate information, as opposed to facilitating maintenance of a medical solution at a desired temperature as recited in the independent claim.

The Elson et al. patent similarly does not disclose, teach or suggest these features. Rather, the Elson et al. patent discloses a system for sensing a characteristic of fluid flowing to or from the body of a human. The system includes a fitting with a passage extending therethrough and a boss extending from the fitting and including a port in communication with the passage. A receiver extends completely across the passage (e.g., See Fig. 2 and Column 4, line 61 to Column 5, line 11). The receiver is configured to receive a thermistor of a probe for measuring temperatures of fluids flowing through the passage (e.g., See Column 5, lines 35 - 37). A restriction is disposed at the receiver to restrict the flow passage (e.g., See Column 5, lines 18 - 20).

Thus, the Elson et al. patent discloses a receiver extending completely across the passage, as opposed to a substantial majority of the receptacle being fixedly disposed in a connection port external of the passage with the distal end of the receptacle extending slightly beyond the connection port distal end as recited in the independent claim. Further, the Elson et al. patent discloses a restriction formed at the receiver in the form of a shoulder or step (e.g., See Fig. 2), where the passage on each side of the receiver has different cross-sectional dimensions. Accordingly, the Elson et al. patent does not disclose, teach or suggest at least one passage

portion on each side of the receiver having the same cross-sectional dimensions as recited in the independent claim.

Although the Elson et al. patent discloses an alternative embodiment with a uniform passage (e.g., See Fig. 5), this embodiment employs a rubber receiver that is stretched a substantial distance into the passage (e.g., See Column 5, lines 52 - 54 and Column 6, lines 1 - 5). Accordingly, this embodiment does not disclose, teach or suggest a metallic receptacle or, for that matter, a substantial majority of the receptacle being fixedly disposed in a connection port external of the passage with the distal end of the receptacle extending slightly beyond the connection port distal end as recited in the independent claim. In addition, the Elson et al. patent teaches away from the present invention by disclosing that the projection of the receiver into the flow passage (i.e., completely across or a substantial distance into the passage as discussed above) creates turbulence to assist in heat transfer (e.g., See Column 2, lines 41 - 44). Accordingly, it would not be obvious to merely modify the Elson et al. patent to attain the claimed invention.

Further, the Elson et al. patent discloses that the fitting is connected at one end with a syringe to enable the temperature of injectate flowing from the syringe to be measured by the probe within the fitting. The measured temperature is utilized to calculate a temperature drop in order to determine a cardiac output (e.g., See Fig. 1; Column 1, lines 11 - 22; and Column 4, lines 42 - 60), as opposed to facilitating maintenance of a medical solution at a desired temperature as recited in the independent claim.

The Mitchell et al. patent does not compensate for the deficiencies of the Barker and Elson et al. patents and similarly does not disclose, teach or suggest these features. Rather, the Mitchell et al. patent discloses a personal health care system utilizing a unitary command center having a computer for receiving, storing, processing and transmitting information, and is merely utilized by the Examiner for an alleged teaching of recording and printing of patient data, and displaying the data on a monitor.

Since the Barker, Elson et al. and Mitchell et al. patents do not disclose, teach or suggest, either alone or in combination, the features recited in independent claim 34 as discussed above, this claim is considered to overcome the rejection.

Claims 37 - 38 depend, either directly or indirectly, from independent claim 34, and therefore, include all of the limitations of their parent claim. Claims 37 - 38 have been amended for consistency with their amended parent claim and/or for further clarification. Accordingly, these dependent claims are considered to overcome the rejection for substantially the same reasons discussed above in relation to their parent claim and for further limitations recited in the dependent claims.

The Examiner has rejected claims 34 - 35 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,138,890 (Brown) in view of U.S. Patent No. 3,526,134 (Paine), and further in view of U.S. Patent No. 5,590,648 (Mitchell et al.). Briefly, the present invention is directed toward measuring the temperature of a fluid at selected locations along an IV fluid line as described above.

The Examiner takes the position that the Brown patent discloses the claimed features, except for electronically displaying the measured temperatures on a display device. The Examiner further alleges that the Paine and Mitchell et al. patents teach these features, and that it would have been obvious to combine the Brown, Paine and Mitchell et al. patents to attain the claimed invention.

This rejection is respectfully traversed. As discussed above, independent claim 34 has been amended and recites the features of: a metallic receptacle receiving a temperature sensor, wherein a substantial majority of the receptacle is fixedly disposed in the connection port and external of the passage and the closed distal end of the receptacle extends slightly beyond the distal end of the connection port and contacts fluid flowing within the passage; generating an electrical temperature signal indicating measured solution temperature to facilitate maintenance of a desired temperature for the medical solution; and at least one portion of the passage located proximally of the receptacle including the same transverse cross-sectional dimensions as at least one other passage portion located distally of the receptacle.

The Brown et al. patent does not disclose, teach or suggest these features. Rather, the Brown patent discloses a temperature indicating probe comprising a liquid-in-glass thermometer encased in a clear plastic housing (e.g., See Abstract). The thermometer is configured to insertably extend into the passage member openings of standard fittings, such as crosses and tees (e.g., See Column 2, lines 40 - 46). Thus, there is no disclosure, teaching or suggestion of a metallic receptacle within the fitting or, for that matter, a temperature sensor within the receptacle, and a substantial majority of the receptacle being fixedly disposed in a connection

port and external of a passage and a closed distal end of the receptacle extending slightly beyond the distal end of the connection port and contacting fluid flowing within the passage as recited in the independent claim.

The Paine patent does not compensate for the deficiencies of the Brown patent. Rather, the Paine patent discloses a fixture for holding a temperature sensing element in a fluid stream which may flow through a pipeline. The fixture comprises a pipeline section with an aperture therein. The sensing element projects through the aperture to the inside of the pipeline to provide contact with the flowing medium (e.g., See Column 1, line 67 to Column 2, line 2). Thus, there is no disclosure, teaching or suggestion of a metallic receptacle within the fixture or, for that matter, a temperature sensor within the receptacle, and a substantial majority of the receptacle being fixedly disposed in a connection port and external of a passage and a closed distal end of the receptacle extending slightly beyond the distal end of the connection port and contacting fluid flowing within the passage as recited in the independent claim.

The Mitchell et al. patent does not compensate for the deficiencies of the Brown and Paine patents. As discussed above, the Mitchell et al. patent discloses a personal health care system utilizing a unitary command center having a computer for receiving, storing, processing and transmitting information, and is merely utilized by the Examiner for an alleged teaching of displaying measured fluid temperatures on a display device based on temperature signals generated by a temperature sensor.

Since the Brown, Paine and Mitchell et al. patents do not disclose, teach or suggest, either alone or in combination, the features recited in independent claim 34 as discussed above, this claim is considered to overcome the rejection.

Claim 35 and new claims 74 - 76 depend, either directly or indirectly, from independent claim 34, and therefore, include all of the limitations of their parent claim. Claim 35 has been amended to further clarify present invention features. Accordingly, these dependent claims are considered to overcome the rejection for substantially the same reasons discussed above in relation to their parent claim and for further limitations recited in the dependent claims.

Since none of the cited patent documents within the above rejections disclose, teach or suggest the features recited within claims 34 - 35, 37 - 38 and 74 - 76 as discussed above, these claims are considered to be condition for allowance.

In view of the foregoing, Applicants respectfully request the Examiner to find the application to be in condition for allowance with claims 27 - 28, 30 - 35, 37 - 40 and 65 - 76. However, if for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to discuss any unresolved issues and to expedite the disposition of the application.

Filed concurrently herewith is a Petition (with payment) for an Extension of Time of Three Month(s). Applicants hereby petition for any extension of time that may be necessary to maintain the pendency of this application. The Commissioner is hereby authorized to charge payment of any additional fees required for the above-identified application or credit any overpayment to Deposit Account No. 05-0460.

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